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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/041,613	01/10/2002	Kwan Yeul Cho	0630-1403P	5085

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BIRCH STEWART KOLASCH & BIRCH
PO BOX 747
FALLS CHURCH, VA 22040-0747

EXAMINER	
NGUYEN, HANH N	
ART UNIT	PAPER NUMBER
2834	

DATE MAILED: 06/03/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Application No.	Applicant(s)	
10/041,613	CHO ET AL.	
Examiner	**Art Unit**	
HANH NGUYEN	2834	

Office Action Summary

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____ .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-11* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-11* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *10 January 2002* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Specification

1. The disclosure is objected to because of the following informalities: "through hole 19 formed on the stator" should be --- through hole 3---on page 8, line 18, "the rotor receiving parts 14 and 21" on page 9, line 3 should be ---the shaft support parts---, "33d and 36d" on page 9, line 25 should be --- 33d and 36e---. "10~20°" should be---10°-20° --- in claim 6 and on Page 9,12.

Appropriate correction is required.

Claim Objections

2. Claim 4 is objected to because of the following informalities: "the second stator around" should be ---the second stator core around--.

Claim 6 is objected to because of the following informalities: ".3~3mm" should be--.3-3mm---.

Claim 6 is objected to because of the following informalities: "10~20°" should be--10°-20°---. Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 3,6,7 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to

reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Claim 6 recites limitation "a sensor for sensing a rotational position of the rotor is positioned around 10~20° from one of the separate spaces nearer to the coil winding unit in an opposite rotational direction of the rotor" while in the specification, the sensor receiving part 59 is described as being installed around 10~20° from the Lv and location of sensor was not shown in Fig. 10. Location of sensor 59 was shown in Fig. 13 does not relate to "the separated spaces" as recited in claim 6. Under the light of the specification, the examiner interpret the limitation as "the sensor is position around 10~20° from the starting end of the protrusion with respect to the center of the shaft"

Claim 7 is dependent claim of claim 6.

Claim 3 recites limitation ".3mm-3mm" but the specification describe as ".3mm through 1mm"

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1,2 are rejected under 35 U.S.C. 102(b) as being anticipated by Hayashi.

Regarding claim 1, Hayashi discloses a skeleton type brushless motor (preamble, patentable weight not given) comprising: a rotor (11 in Fig. 2) having a rotational shaft in a center thereof; and a stator including first (15 in Fig. 4) and second

stator cores (16) having rotor receiving part formed in the stator (15a and 16a) for receiving the rotor, a coil winding unit (18) connected to the stator cores, and a coil (17) wound on the coil winding unit; wherein the first and second stator cores are electrically separated and facing each other centering on the rotary shaft.

Regarding claim 2, Hayashi also discloses the electrical machine wherein the rotor receiving part includes the first and second rotor receiving parts having semicircular shape (Fig. 4), and first and second separate spaces (a and b in Fig. 2) are formed between each one of both ends of the first rotor receiving part and corresponding one of those of second rotor receiving part.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hayashi.

Regarding claim 3, Hayashi shows all limitations of the claimed invention except showing the first and second separate spaces have an identical length of 0.3-3mm. It would have been obvious to one having ordinary skill in the art at the time the invention was made to make the first and second separate spaces have an identical length of 0.3-3mm, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable range involves only routine skill in the art. In re Aller, 105 USPQ 233.

6. Claims 4 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hayashi in view of Kawaki et al.

Regarding claim 4, Hayashi shows all limitations of the claimed invention except showing the motor wherein outer surfaces of the first stator core around both ends of the first rotor receiving part and the second stator around both ends of the second rotor receiving part are protrudingly formed outwardly in a radial direction of the rotor.

However, Kawaki et al. disclose a motor structure wherein outer surfaces of the first stator core around both ends of the first rotor receiving part (the vicinity between both end of the first rotor receiving part) and the second stator around both ends of the second rotor receiving part (the vicinity between both end of the first rotor receiving part) are protrudingly formed outwardly in a radial direction of the rotor (recess portions 7 and 8) for the purpose of increasing motor torque (Col. 2, lines 60-63)

Since Hayashi and Kawaki et al. are in the same field of endeavor, the purpose disclosed by Kawaki et al. would have been recognized in the pertinent art of Hayashi.

It would have been obvious at the time the invention was made to a person having an ordinary skill in the art to modify Hayashi by forming protrusions outwardly in a radial direction of the rotor at the surfaces of the first stator core around both ends of the first rotor receiving part and the second stator around both ends of the second rotor receiving part as taught by Kawaki et al. for the purpose of increasing motor torque.

Regarding claim 5, it is noted that Kawaki et al also show the motor wherein a pair of detent parts (7 and 8), having larger radius than radii of the first and second rotor receiving parts from the rotary shaft, are formed around each one end of the first and

the second rotor receiving parts in a rotational direction of the rotary shaft (as demonstrated by arrow A), and in point symmetry centering on the rotary shaft.

7. Claims 8-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hayashi in view of Erdman et al.

Regarding claim 8, Hayashi shows all limitations of the claimed invention except showing the motor further comprising a pair of shaft support parts rotatably supporting the rotational shaft in both sides of the stator; and further comprising a pair of separate members for separating the shaft support parts, the separate members being inserted between the stator and the shaft support parts.

However, Erdman et al. disclose a motor structure further comprising a pair of shaft support parts (516 and 518 in Fig. 5) rotatably supporting the rotational shaft (18) in both sides of the stator; and further comprising a pair of separate members (510 and 512) for separating the shaft support parts, the separate members being inserted between the stator and the shaft support parts for the purpose of fixing the rotor to the stator.

Since Hayashi and Erdman et al. are in the same field of endeavor, the purpose disclosed by Erdman et al. would have been recognized in the pertinent art of Hayashi. It would have been obvious at the time the invention was made to a person having an ordinary skill in the art to modify Hayashi by including a pair of shaft support parts rotatably supporting the rotational shaft in both sides of the stator; and further comprising a pair of separate members for separating the shaft support parts, the

separate members being inserted between the stator and the shaft support parts as taught by Erdman et al. for the purpose of fixing the rotor to the stator.

Regarding claim 9, it is noted that Erdman et al. also show a cover (tabs shown in Fig. 5) is installed on each of the separate members for covering each of the separate spaces for the pupose of protecting the rotor.

Regarding claim 10, it is noted that Erdman et al. also show the motor comprising drive control unit for driving and controlling the rotor, connected to the coil winding unit in a direction of the rotary shaft, wherein the drive control unit is PCB (circuit board 336 in Fig. 5) on which a drive control circuit is formed for the purpose controlling the rotation of the rotor.

Regarding claim 11, it is noted that Erdman et al. also show the motor of claim wherein the PCB further comprises an AC capacitor connected to utility power for decreasing voltage of the utility power, and a rectification circuit for rectifying the utility power inserted between the PCB and the drive control circuit (Col. 17, lines 39-50) for the purpose of controlling the rotation of the rotor.

8. Claims 6 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hayashi in view of Kawaki et al. and further in view of Erdman et al..

Regarding claim 6, Hayashi and Kawaki et al. show all limitations of the claimed invention except showing the motor wherein a sensor for sensing a rotational position of the rotor is positioned around 10°- 20° from one of the separate spaces nearer to the coil winding unit in an opposite rotational direction of the rotor.

However, Erdman et al. discloses a motor structure wherein a sensor (439 in Fig. 9 and 10) for sensing a rotational position of the rotor is positioned around 10°- 20° from one of the separate spaces nearer to the coil winding unit in an opposite rotational direction of the rotor for the purpose of detecting the position of the rotor.

Since Hayashi, Kawaki et al. and Erdman et al. are in the same field of endeavor, the purpose disclosed by Erdman et al. would have been recognized in the pertinent art of Hayashi and kawaki et al.

It would have been obvious at the time the invention was made to a person having an ordinary skill in the art to modify Hayashi and Kawaki et al. by using a sensor for sensing a rotational position of the rotor is positioned around 10°- 20° from one of the separate spaces nearer to the coil winding unit in an opposite rotational direction of the rotor as taught by Erdman et al. for the purpose of detecting the position of the rotor.

Regarding claim 7, Erdman et al. also shows the motor comprising drive control unit for driving and to controlling the rotor, connected to the coil winding unit in a direction of the rotary shaft, wherein a sensor receiving part for receiving the sensor is formed in the drive control unit (Col. 8, lines 63-67 and Col. 9, lines 1-5) for the purpose of controlling the rotation of the rotor.

Conclusion

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hanh N Nguyen whose telephone number is (703) 305-3466. The examiner can normally be reached on Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner 's supervisor, Nestor Ramirez can be reached on (703) 308-1371. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 305-3431 for regular communications and (703) 305-3431 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1782.

HNN

May 24, 2002

NESTOR RAMIREZ
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800